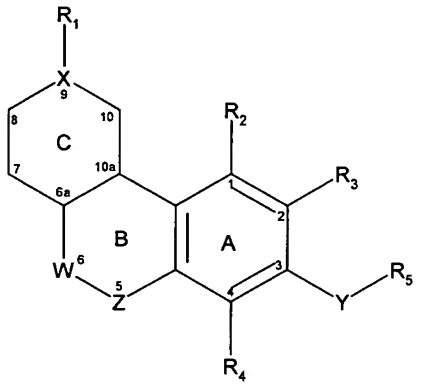
Listing of Amended Claims:

1. (Currently Amended) A method of using a fluorescent cannabinoid compound comprising:

providing a cannabinoid compound having structural formula 1 below or a physiologically acceptable salt thereof, wherein the compound has an endogenous fluorescent property;



1

wherein:

Y is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C and C≡C; Z is O; X is selected from C and CH; and

W is C=O and the C ring has a double bond in the 6a-10 position; or

R1 is =O and the C ring has a double bond in the 10-10a position; or

W is C=O and the C ring is aromatic;

exciting the cannabinoid compound; and

detecting the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

2. (Currently Amended) The method of claim 1, ~~a~~ wherein the electromagnetic radiation fluorescently emitted by the ~~cannabinoid~~ compound is in the ultraviolet-visible wavelength ranges.

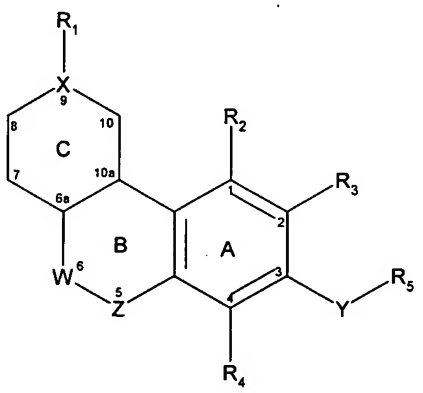
3. (Canceled)

4. (Canceled)

5. (Original) The method of claim 1, wherein the step of detecting comprises quantifying the electromagnetic radiation fluorescently emitted by the ~~cannabinoid~~ compound.

6. (Currently Amended) A method of using a fluorescent cannabinoid compound comprising:

providing a cannabinoid compound having structural formula I below or a physiologically acceptable salt thereof, wherein the compound has an endogenous fluorescent property ~~The method of claim 1, wherein the cannabinoid compound comprises compound formula I, and physiologically acceptable salts thereof~~;



I

wherein:

~~the C ring contains one double bond;~~

W ~~comprises~~ is selected from C=O[[,]] and C=S ~~or C=CH$_2$~~;

X ~~comprises~~ is selected from C[[,]] and CH~~, N, S, O, SO or SO$_2$~~;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C or C≡C;

Z ~~comprises~~ is O, ~~NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position~~;

~~when X is S, O, SO or SO_2, R_1 is not present, or~~

~~when X is N, R_1 comprises H, alkyl, alkoxy alkyl, alkylmercapto, alkylamino, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H[[,]] or SO_3alkyl, or~~

~~when X is C or CH,~~ R_1 ~~comprises~~ is any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, =O, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, C(halogen)$_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, $=CH_2$, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino ~~or~~ and alkyl substituted in any possible position with at least substituent group,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, $CONQ_1Q_2$, OQ_3, CQ_3, C(halogen)$_3$, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl[[,]] and $SO_2NQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from $-D_1-D_2-T_2$ ~~or~~ and $-D_2-T_2$,

D_1, if present, ~~comprises~~ is selected from an alkyl group, a carbocyclic ring, a heterocyclic ring, N-alkyl ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 ~~or~~ , adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and $-CO-T_4$,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, alkylamino, di-alkylamino, NO_2, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring;

exciting the cannabinoid compound; and

detecting the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

7. (Currently Amended) The method of claim 6 wherein:

the C ring contains one double bond; ~~X is C or CH~~ and R_1 ~~comprises~~ is any possible member selected from H, halogen, $=CH_2$, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH_2OH, halogen, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ ~~or~~ and NQ_1Q_2.

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about

6 members.

8. (Currently Amended) The method of claim 6 wherein the C ring contains one double bond; and R_5 ~~comprises~~ is selected from $-D_1-D_2-T_2$ ~~or~~ and $-D_2-T_2$,

D_1 ~~comprises~~ is selected from a carbocyclic ring having 5 to 6 ring members[[,]] and a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and $-CO-T_4$,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T_4 ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

9. (Currently Amended) The method of claim 6 wherein:

the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from OH, CH_2OH[[;]] , halogen ~~or~~ and $C(halogen)_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol ~~or~~ and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from $-D_1-D_2-T_2$ ~~or~~ and $-D_2-T_2$,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and $-CO-T_4$,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C-(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

10. (Currently Amended) The method of claim 6 wherein:

the C ring ~~comprises~~ has a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from OH, CH_2OH[[;]] , halogen ~~or~~ and $C(halogen)_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1 ~~comprises~~, if present, is selected from an alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

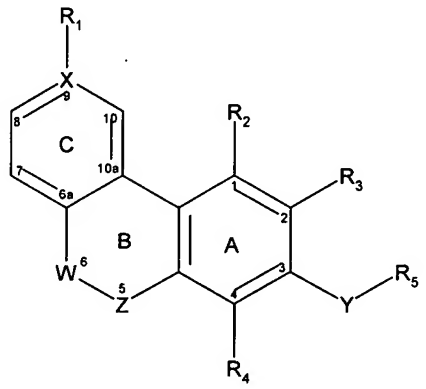
D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 ~~or~~ and adamantan-2-ylidenemethyl-T_3,

T_2 ~~comprises~~ is selected from , in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

11. (Currently Amended) The method of claim ~~1~~ 6 wherein the ~~cannabinoid~~ compound comprises compound formula II, and physiologically acceptable salts thereof,



II

wherein:

~~W comprises C=O, C=S, or C=CH$_2$;~~

~~X comprises C, CH or N;~~

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;~~

R_1 ~~comprises~~ is any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, C(halogen)$_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, alkyl[[,]] and alkyl substituted in any possible position with at least one substituent group,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[,]] ~~or~~ and alkyl-NQ_1Q_2;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, ~~$SO_2NQ_1Q_2$~~, $CONQ_1Q_2$, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl[[,]] and $SO_2NQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[,]] ~~or~~ and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and C1 to C4 alkyl,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and C1 to C4 alkyl;

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

12. (Currently Amended) The method of claim 11 wherein W ~~comprises~~ is C=O.

13. (Currently Amended) The method of claim 11 wherein R_1 ~~comprises~~ is any possible member selected from H, halogen, OH, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H ~~or~~ and SO_3alkyl.

14. (Currently Amended) The method of claim 11 wherein R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T_4 ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

15. (Currently Amended) The method of claim 11 wherein:

W is C=O;

X ~~comprises~~ is C ~~or N~~;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

~~Z is O;~~

R_1 ~~comprises~~ is selected from methyl, OH , CH_2OH[[;]] , halogen ~~or~~ and $C(halogen)_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[,]] ~~or~~ and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

16. (Currently Amended) The method of claim 11 wherein:

W is C=O;

X ~~comprises~~ is C ~~or N~~;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

~~Z is O;~~

R_1 ~~comprises~~ is selected from methyl, OH ~~or~~ and CH_2OH;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from an alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 ~~or~~ and adamantan-2-ylidenemethyl-T_3,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

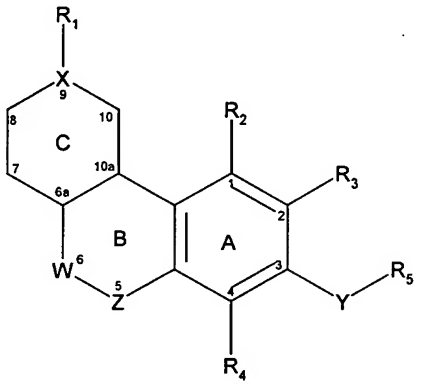
T_4 ~~comprises~~ is selected from alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

17. (Currently Amended) The method of claim 1 comprising the step of combining the ~~cannabinoid~~ compound with a test sample.

18. (Currently Amended) The method of claim 1 comprising the step of interacting the ~~cannabinoid~~ compound with a cannabinoid receptor.

19. (Currently Amended) The method of claim 1 comprising the step of selectively interacting the ~~cannabinoid~~ compound with predominately one type of cannabinoid receptor.

20. (Currently Amended) A test kit for detecting a fluorescent property comprising a ~~cannabinoid~~ cannabimimetic compound having an endogenous fluorescent property and the structural formula



wherein:

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C ~~or~~ and C≡C;

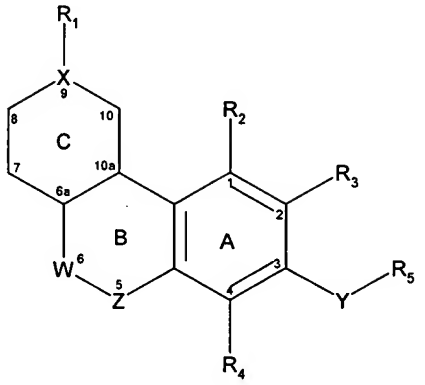
Z is O; X is selected from C and CH; and

W ~~comprises~~ is C=O and the C ring has a double bond in the 6a-10 position; or

R1 ~~comprises~~ is =O and the C ring has a double bond in the 10-10a position; or

W ~~comprises~~ is C=O and the C ring is aromatic.

21. (Currently Amended) A compound of formula I, and physiologically acceptable salts thereof,



I

wherein:

the C ring contains one double bond;

W ~~comprises~~ is selected from C=O[[,]] and C=S ~~or C=CH$_2$~~;

X ~~comprises~~ is selected from C[[,]] and CH ~~, N, S, O, SO or SO$_2$~~;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

Z ~~comprises~~ is ~~O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position~~;

~~when X is S, O, SO or SO$_2$, R$_4$ is not present, or~~

~~when X is N, R$_4$ comprises H, alkyl, alkoxy alkyl, alkylmercapto, alkylamino, SO$_3$alkyl, SO$_2$NQ$_1$Q$_2$, CONQ$_1$Q$_2$ or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N$_3$, NCS, CN, PO$_3$H$_2$, SO$_3$H, or SO$_3$alkyl; or~~

~~when X is C or CH,~~ R_1 ~~comprises~~ is any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, =O, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, $C(halogen)_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, $=CH_2$, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino ~~or~~ and alkyl substituted in any possible position with at least substituent group,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, CQ_3, $C(halogen)_3$, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl[[,]] and $SO_2NQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from an alkyl group, a carbocyclic ring, a heterocyclic ring, N-alkyl ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent

group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, alkylamino, di-alkylamino, NO_2, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring but if W is C=O and Y is O then R_1 is not H.

22. (Currently Amended) The compound of claim 21 wherein ~~X is C or CH and~~ R_1 ~~comprises~~ is any possible member selected from H, halogen, $=CH_2$, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH_2OH, halogen, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, or SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ ~~or~~ and NQ_1Q_2,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members.

23. (Currently Amended) The compound of claim 21 wherein R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 5 to 6 ring members[[,]] and a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T_4 ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

24. (Currently Amended) The compound of claim 21 wherein:

the C ring ~~comprises~~ has a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from OH, CH_2OH; halogen ~~or~~ and $C(halogen)_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C-(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C-(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

25. (Currently Amended) The compound of claim 21 wherein:

the C ring ~~comprises~~ has a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from OH, CH_2OH; halogen ~~or~~ and C(halogen)$_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from $-D_1-D_2-T_2$ ~~or~~ and $-D_2-T_2$,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

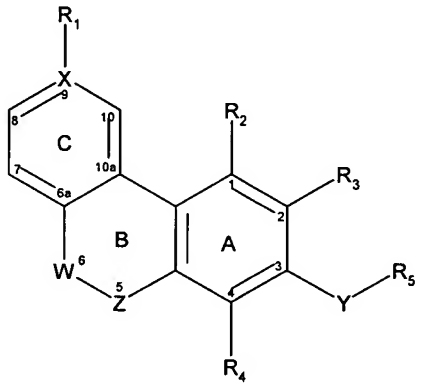
D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 ~~or~~ and adamantan-2-ylidenemethyl-T_3,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and $-CO-T_4$,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from alkyl, $C(halogen)_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

26. (Currently Amended) The compound of formula II, and physiologically acceptable salts thereof,



II

wherein:

W ~~comprises~~ is selected from C=O[[,]] and C=S~~, or C=CH2~~;

X ~~comprises~~ is selected from C[[,]] and CH ~~or N~~;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

Z ~~comprises~~ is O~~, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position~~;

R_1 ~~comprises~~ is any possible member selected from H, halogen, ~~$C(halogen)_3$~~, N_3, NCS, CN, NO_2, NQ_1Q_2, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, $C(halogen)_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, alkyl[[,]] and alkyl substituted in any possible position with at least one substituent group,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T1, NH-alkyl-T_1, NH-T_1, SO_3alkyl[[,]] and $SO_2NQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and C1 to C4 alkyl,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and C1 to C4 alkyl;

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring

but if W is C=O and Y is O then R_5 is not CH2COOH or CH2COOEt.

27. (Currently Amended) The compound of claim 26 wherein W ~~comprises~~ is C=O.

28. (Currently Amended) The compound of claim 26 wherein R_1 ~~comprises~~ is any possible member selected from H, halogen, C(halogen)$_3$, alkyl amino, di-alkylamino, NH_2, OH, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H ~~or~~ and SO_3alkyl.

29. (Currently Amended) The compound of claim 26 wherein R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~

and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T_4 ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

30. (Currently Amended) The compound of claim 26 wherein:

W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from methyl, OH, CH_2OH[[;]] , halogen ~~or~~ and $C(halogen)_3$;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, ~~or~~ adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino ~~or~~ and NH,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T_4 ~~comprises~~ is selected from H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

31. (Currently Amended) The compound of claim 26 wherein:
W is C=O;

X ~~comprises~~ is C ~~or N~~;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R_1 ~~comprises~~ is selected from methyl, OH ~~or~~ and CH_2OH;

R_2 ~~comprises~~ is selected from H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ ~~or~~ and $CONQ_1Q_2$,

T_1 is in any possible position and ~~comprises~~ is selected from PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring

~~or~~ and a heteroaromatic ring,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ_1Q_2;

R_3 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 ~~comprises~~ is selected from H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 ~~comprises~~ is selected from -D_1-D_2-T_2 ~~or~~ and -D_2-T_2,

D_1, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 ~~or~~ and adamantan-2-ylidenemethyl-T_3,

T_2 ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T_4,

T_3 ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T_4 ~~comprises~~ is selected from alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

Claims 32-40. (Canceled)

41. (new) A pharmaceutical composition comprising a therapeutically effective amount of at least one compound from claim 21 or a physiologically acceptable salt thereof.

42. (new) A pharmaceutical composition comprising a therapeutically effective amount of at least one compound from claim 26 or a physiologically acceptable salt thereof.

43. (new) A method of stimulating a cannabinoid receptor in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound from claim 21 or a physiologically acceptable salt thereof.

44. (new) A method of stimulating a cannabinoid receptor in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound from claim 26 or a physiologically acceptable salt thereof.